

ABSTRACT

The invention solves the problem of maintaining RIF information in a router for populating the RIF field of packets routed by the router, by storing the RIF information with the Layer 2 address in the address binding table. The address binding table establishes a binding between a Layer 2 address and a Layer 3 address of a station. The Layer 2 address in the address binding table is extended to include the RIF information. The address binding table is normally maintained in the router in an architecture which permits rapid access for fast switching such as cut through routing. A separate RIF cache table, requiring a separate time consuming table look-up is thereby avoided. The address binding table is referred to as the ARP Table in IP protocol. The Layer 2 address is extended to include both MAC address and RIF information. The RIF information in the Layer 2 field of the ARP table is updated in response to execution of an ARP Explorer protocol by the router. RIF information is read from an ARP Explorer response packet and written into the Layer 2 field of the ARP table. The Layer 2 address, both MAC address and RIF information, is read from the ARP table for use in populating both the destination address field and the RIF field of a routed packet.